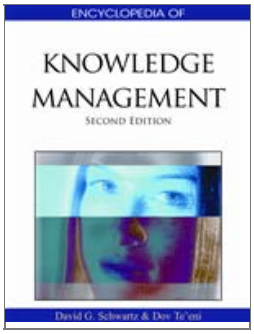
Encyclopedia of Knowledge Management, Second Edition



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Preface

The Knowledge Management Pyramid: Unification of a Complex Discipline

A Preface to the Encyclopedia of Knowledge Management, 2nd Edition

David G. Schwartz and Dov Te'eni

Much has happened since the 1st edition of the *Encyclopedia of Knowledge Management* appeared in 2006. There has been an explosion of social computing applications, huge strides taken in knowledge categorization through automated methods and human tagging, and the continued growth of the knowledge-as-an-asset view of organization theory.

The storehouse of journals dedicated to the exploration of knowledge management continues to grow and now numbers well over 30 (see Table 1).

Table 1. KM-focused research journals

Journal Title	Publisher
<!--[if !supportLists]-->1. <!--[endif]-->Data and Knowledge Engineering	Elsevier Science
<!--[if !supportLists]-->2. <!--[endif]-->Data Mining and Knowledge Discovery	Springer-Verlag
<!--[if !supportLists]-->3. <!--[endif]-->Electronic Journal of Knowledge Management	Academic Conferences Limited
<!--[if !supportLists]-->4. <!--[endif]-->IEEE Transactions on Knowledge and Data Engineering	IEEE Computer Society
<!--[if !supportLists]-->5. <!--[endif]-->Interdisciplinary J. of Info. and Knowledge Management	Informing Science Institute
<!--[if !supportLists]-->6. <!--[endif]-->Intl. J. of Applied Knowledge Management	International Management Journals
<!--[if !supportLists]-->7. <!--[endif]-->Intl. J.	Inderscience Publishers

of Intellectual Property Management	
<!--[if !supportLists]-->8. <!--[endif]-->Intl. J. of Knowledge, Culture, and Change Management	Common Ground Publishers
<!--[if !supportLists]-->9. <!--[endif]-->Intl. J. of Knowledge and Learning	Inderscience Publishers
<!--[if !supportLists]-->10. <!--[endif]-->Intl. J. of Knowledge Management	Idea Group Publishing
<!--[if !supportLists]-->11. <!--[endif]-->Intl. J. of Knowledge Management Studies	Inderscience Publishers
<!--[if !supportLists]-->12. <!--[endif]-->Intl. J. of Learning and Intellectual Capital	Inderscience Publishers
<!--[if !supportLists]-->13. <!--[endif]-->Intl. J. of Nuclear Knowledge Management	Inderscience Publishers
<!--[if !supportLists]-->14. <!--[endif]-->Intl. J. of Software Engineering and Knowledge Engineering	World Scientific
<!--[if !supportLists]-->15. <!--[endif]-->Journal of Information and Knowledge Management	World Scientific
<!--[if !supportLists]-->16. <!--[endif]-->Journal of Intellectual Capital	Emerald Publishers
<!--[if !supportLists]-->17. <!--[endif]-->Journal of Knowledge Acquisition	Academic Press
<!--[if !supportLists]-->18. <!--[endif]-->Journal of Knowledge Management	Emerald Publishers
<!--[if !supportLists]-->19. <!--[endif]-->Journal of Knowledge Management Practice	TLA Inc.
<!--[if !supportLists]-->20. <!--[endif]-->Journal of Universal Knowledge Management	Know-Center and Graz University of Technology
<!--[if !supportLists]-->21. <!--[endif]-->Knowledge and Innovation: J. of the KMCI	Knowledge Management Consortium International
<!--[if !supportLists]-->22. <!--[endif]-->Knowledge and Information Systems	Springer-Verlag
<!--[if !supportLists]-->23. <!--[endif]-->Knowledge and Process Management	Wiley Interscience
<!--[if !supportLists]-->24. <!--[endif]-->Knowledge, Technology, and Policy	Transaction Publishers
<!--[if !supportLists]-->25. <!--[endif]-->Knowledge-Based Systems	Elsevier Science
<!--[if !supportLists]-->26. <!--[endif]-->Knowledge Management for Development J.	Taylor & Francis
<!--[if !supportLists]-->27. <!--[endif]-->Organizational Learning	Sage Publications
<!--[if !supportLists]-->28. <!--[endif]-->The ICFAI Journal of Knowledge Management	IUP
<!--[if !supportLists]-->29. <!--[endif]-->The Knowledge Engineering Review	Cambridge University Press
<!--[if !supportLists]-->30. <!--[endif]-->Knowledge Management Research and Practice	Palgrave
<!--[if !supportLists]-->31. <!--[endif]-->International Journal of Knowledge Management	IGI
<!--[if !supportLists]-->32. <!--[endif]-->Journal of Knowledge Management Studies	Inderscience
<!--[if !supportLists]-->33. <!--[endif]-->The Learning Organization	Emerald Publishers
<!--[if !supportLists]-->34. <!--[endif]-->VINE: The Journal of Information and Knowledge Management Systems	Emerald Publishers

Burden's (2000) KM bibliography, which encompasses both research and industry/trade publications, cites over 900 books and a whopping 8000 articles

devoted to the field. In Rollett's (2003) KM bibliography we are treated to over 1000 academic research articles on KM. Gu's (2004) compendium finds 2,727 unique authors contributing KM articles within the ISI Web of Science database. More recently, Serenko et al. (2010) has enumerated 2,175 articles published between 1994-2008 across 11 key KM/IC publications.

All this *in addition* to the established list of more general Information Systems and Information Science journals and conference venues that serve as a forum for knowledge management research. And of course an abundance of industry magazines and newsletters dedicated to the understanding, development, and adoption of organizational knowledge management.

As the discipline of knowledge management (Jasimuddin 2006, Croadsell & Jennex 2005, Schwartz 2005) continues to develop and expand the need to summarize, categorize, organize, and analyze the myriad contributions and directions being taken grows paramount. This 2nd edition continues toward our goal of creating an authoritative repository of knowledge management concepts, issues, and techniques; keeping in mind the ever-present need to create a logical structure that maps out the field of knowledge management across its diverse disciplines.

The Significance of Articles in the Volume

How does this differ from a traditional encyclopedia? Every scientific and intellectual pursuit presents a spectrum of knowledge ranging from the speculative to the experimental to the proven to the well-established. An encyclopedia traditionally presents definitive articles that describe well-established and accepted concepts or events. While we have avoided the speculative extreme, we continue to encourage and attempt to attract entries that may be closer to the 'experimental' end of the spectrum than the 'well-established' end. The need to do so is driven by the youth of the discipline and the desire to not only document the established, but to provide a resource for those who are pursuing the experimental.

Alavi and Leidner, in their oft-cited Review of Knowledge Management and Knowledge Management Systems (2001) bring three pointed conclusions to the fore:

> *There is no single clear approach to the development of knowledge management systems – it is a multi-faceted endeavor*
>
> *Knowledge management is a dynamic, continuous organizational phenomenon of interdependent processes with varying scope and changing characteristics*
>
> *Information technology can be used to extend knowledge management beyond traditional storage and retrieval of coded knowledge*

Not only does this Encyclopedia reinforce those conclusions, it relishes and thrives in the complexity and diversity to which they allude. The systems and technology perspective is but one of many that have been dealt with in this volume. While we do not wish to lose focus on our main goal of managing knowledge in organizations, in order to better achieve that goal it is necessary to look at areas of study as diverse as epistemology and anthropology in order to map the future directions of knowledge management.

With that goal in mind, once again a wide net was cast in the Call for Papers (CFP) in an attempt to attract researchers from many relevant disciples. This edition, as well, includes a number of invited articles where the Editorial Advisory Board found it desirable to fill in gaps that were not covered by the response to the CFP. Aside from those invited contributions, the resulting articles that appear in this volume were selected through a double-blind review process followed by one or more rounds of revision prior to acceptance. Treatment of certain topics is not exclusive according to a given school or approach, and you will find a number of topics tackled from different perspectives with differing approaches. A field as dynamic as KM needs discussion, disagreement, contradiction - and wherever possible, consensus. But we must not sacrifice any of the former on the altar of the latter.

To that end, each author has provided a list of terms and definitions deemed essential to the topic of his or her article. Rather than aggregate and filter these terms to produce a single "encyclopedic" definition, we have preferred instead to let the authors stand by their definition and allow each reader to interpret and understand each article according to the specific terminological twist taken by its author(s). The comprehensive Index provided at the back of this volume provides pointers to each concept and term in its multiple incarnations.

Volume Structure

Printing the 149 articles of this edition in alphabetical order was a decision made based on the overall requirements of IGI's complete series of Reference Encyclopedias. Following the very positive feedback received from the 1st edition, we once again provide a content-oriented logical map to the articles that are printed in alphabetical order by title. We trust that as an increasing number of our readers turn to the online digital versions of these articles, this logical categorization will ease the navigation process.

The Encyclopedia of Knowledge Management is divided into seven logical sections:

1. Theoretical Foundations of Knowledge Management (15)
2. Processes of Knowledge Management (34)
3. Technologies for Knowledge Management (20)
4. Application-specific Knowledge Management (17)
5. Organizational Aspects of Knowledge Management (35)
6. Social Aspects of Knowledge Management (11)
7. Managerial Aspects of Knowledge Management (17)

A change here from the 1st edition is the split of Organizational and Social aspects into two distinct categories – a testament to the growing importance of social network related research to the field of knowledge management. Given that some of the modern roots of knowledge management lay in the early work of Egan and Shera (1952) and Shera (1961) on Social Epistemology, this development is most welcome.

The Table of Contents appearing on page [X] will help you find articles based on this logical section structure.

Within each of the seven major sections are one or more articles on each of the sub-categories that comprise that section – often multiple articles on different aspects of a given topic.

Building Upon Strong Foundations

The seven sections are the result of what we would characterize as a *multifaceted approach* to the discipline of Knowledge Management. It is this multifaceted view, as shown in Figure 1 that we have sought to reinforce with these encyclopedic volumes.

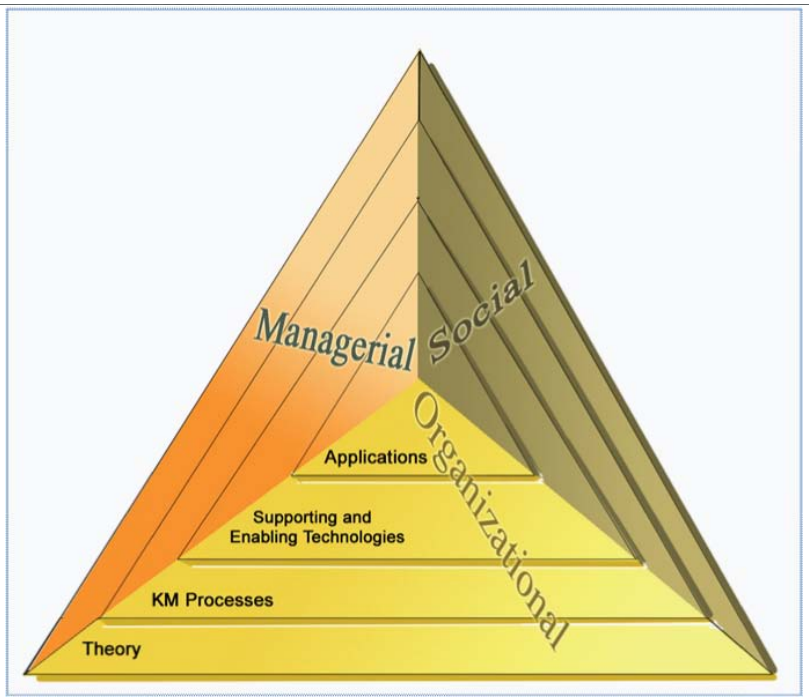

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Figure 1. The Knowledge Management Pyramid

Consider the view presented in Figure 1 giving a holistic view of the knowledge management and its foundations. The view we have taken combines three primary faces - Managerial, Organizational, and Social – across four strata – Theory, Processes, Technologies, and Applications. Each primary face has its theoretical basis, its derived processes, its choice technologies for implementation, and its applications. The three faces, as in a pyramid, support each other. Remove one face, and the other two fall.

The Managerial aspects of knowledge management from the left face. The central face holds those aspects of knowledge management specific to Organizations. The rightmost face is that of Social aspects.

At the base, running through each of the faces, is the Theory layer. Atop the Theory layer we have placed that of Processes. The primary processes that make up Knowledge Management in practice should ideally derive from the core theories that are to be found in each of the faces of Management, Social, and Organizational sciences. Without grounding our processes in theoretical soil we run the very real risk of simply cobbling together processes on an opportunistic basis. We must, in a disciplined manner, turn to our theoretical core in determining the essential processes of KM. In cases where experience begets a process that has yet to be identified with a core theory one must not belittle the need to eventually discover that grounding. At the end of the day this is what will help distinguish fad from enduring science. The Processes layer presents one view of the different stages, activities, and cycles that comprise knowledge management. Processes need to be pragmatic, in terms of our ability to implement them, comprehensive so that we can achieve end-to-end solutions, replicable and generalizable so they can be applied across a wide range of organizations. The Processes Layer too cuts across through the three faces of Organizational, Social and Managerial aspects.

As is often the case, our implementations of Knowledge Management in practice are based to a large degree on information and communications technologies. The Technologies layer, therefore, rests upon the Processes and Theories that have come before it and finds its expression across the three faces. Being driven by technology is not necessarily negative. Consider how the development of the electron microscope led to the discovery of a plethora of atomic and elemental behaviors. The observation of these behaviors led to the development of new theories upon which those discoveries were validated and new discoveries predicated. So too the computing, storage, and communications technologies available today are enabling the implementation and study of new types of knowledge representation, sharing, communications, and interactions.

The multiple facets of knowledge management are intertwined. The recent advancements in social media have changed the processes of knowledge sharing dramatically. But these changes in knowledge sharing raise theoretical issues of the subjective and objective nature of knowledge – the personal subjective knowledge versus the world objective knowledge. And, further, theoretical questions arise concerning the managerial aspects of the interdependency between knowledge sharing and relations among colleagues, as well as questions concerning the social aspects of knowledge sharing among 'friends' through social media such as the impact on trust and emotions in knowledge sharing. Only a few chapters begin to address these emergent phenomena (e.g., the chapters on personal knowledge and emotional capital). As Shera (1961) recognized almost 50 years ago *"From such a discipline should emerge a new body of knowledge about, and a new synthesis of, the interaction between knowledge and social activity"*. Much more is needed.

Finally, at the apex, we reach the Applications layer. The wide range of knowledge management applications could fill many volumes, and in fact keep a number of annual conferences quite busy. We have brought just a few of the potential applications to round out this volume yet each provides some new insights into the potential of our field as a whole.

The flow of knowledge indeed can move up and down the pyramid, and permeates each stratum as it moves between the Managerial, Organizational, and Social aspects. As the theoreticians among us deepen their understanding of the many diverse technologies that impact KM, they can experimentally apply those technologies more effectively and creatively. As the technologists among us are enriched with a solid theoretical foundation they can focus their efforts on the most promising application areas and most difficult theoretical challenges. And our management, social, and organizational scientists provide us with lenses through which we can view theory, processes, and technologies, and perhaps build the bridge between theory and praxis. Everyone benefits from a richer more constructive research and development environment.

How to Use this Book

As a Research Reference

The primary purpose of this volume is to serve as a research reference work. To that end extensive indexing has been undertaken to allow the reader quick access to primary and secondary entries related to keywords and topics. The seven logical sections and sub-categories provided for each section will enable the reader to locate and delve deeply into any given area of knowledge management from their desired perspective.

As a Course Reference

The sheer comprehensiveness combined with the logical structure of this volume also lends itself towards use as a reference for Knowledge Management courses.

Selecting two to three articles from each of the seven section results in many possible study sequences for a comprehensive introductory course in Knowledge Management. Alternatively, the logical sections of this volume can be used individually as the curricular foundation for courses in: Knowledge Management Theory; Designing KM Processes, Technologies for Knowledge Management, Applied KM, Organizational KM; Social KM, and Managing KM respectively.

Conclusion

The need for an updated Encyclopedia of Knowledge Management is driven by the tremendous growth and diversity that has become associated with knowledge management, and this second edition brings a number of new perspectives to the fore. Whether treated as an emerging discipline (Jasimuddin 2006, Croadsell & Jennex 2005, Schwartz, 2005), or a possibly recycled concept (Spiegler, 2000), knowledge management will continue to make its mark on organizations of all forms and sizes. The need to help organizations manage their knowledge has been extolled in nearly a quarter century worth of management literature. In order to truly understand and appreciate what goes into making knowledge management work, we need to approach it holistically from social, managerial and organizational perspectives.

Even the second time round the process of editing this encyclopedia has been enlightening. Most enjoyable has been the interaction with the authors, some of whom have appeared from the most unexpected of places, and others who have come forward from established bastions of knowledge management research.

It is our sincere hope that this volume serves not only as a reference to KM researchers, both novice and veteran, but also as a resource for those coming from the hundreds of disciplines and organizations upon which knowledge management has, should, and will have an long-lasting impact.

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